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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/415,291	10/08/99	EITZMAN	P 52828USA8A

IM52/0322  
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EXAMINER

HUG, E

ART UNIT	PAPER NUMBER
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1731

DATE MAILED:

03/22/01

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

# Office Action Summary

Application No.

09/415,291

Applicant(s)

EITZMAN ET AL.

Examiner

Eric Hug

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1731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 08 October 1999.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11, 12, 14-18 and 20-37 is/are rejected.
- 7) ☒ Claim(s) 10, 13 and 19 is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 36 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Reeves et al. Reeves discloses methods of imparting conductivity to a nonconductive web consisting of polymer microfibers and a device for carrying out the methods. The web is made conductive via a "dip and squeeze" apparatus comprising one or two dip tanks (depending on if one or two solutions are needed). The web is fed continuously through the apparatus. Wetting agents (surfactants) and polar substances are used. The reference reads on the elements of the claims.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 9, 11-12, 14-18, and 20-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reeves et al in view of Rousseau et al. Reeves discloses methods of imparting conductivity to a nonconductive web consisting of polymer microfibers and a device for carrying out the methods. The final product can be used for forming nonwoven fabrics for use in the surgical field. The web is treated with aqueous solutions comprising wetting agents and compounds with hydrophobic (nonpolar) and hydrophilic (polar) functional groups. The hydrophilic groups impart conductivity. Among the chemicals used are alcohols, surfactants, and fluorocarbons. The web is made conductive through a "dip and squeeze" process comprising one or two dip tanks (depending on if one or two solutions are needed). The web is saturated with the solution(s) and the excess is removed with squeezing rollers. Drying follows the dipping and squeezing.

Reeves does not expressly disclose what substances could be used for the second dip material, although it is clear that a polar substance would be chosen. Rousseau teaches that water can be used to provide charge to a web that has been previously treated with compounds containing hydrophilic and hydrophobic functional groups. At the time of invention it would have been obvious to one skilled in the art to use the device of Reeves with water as the second dip material to impart charge to the web. One would be motivated to use water because it is readily abundant, and also because one would wish to test the efficacy of water alone as a baseline or control variable.

The combined references read on the claims as follows:

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Claim 1: The web is made of nonconductive polymeric fibers, and is treated with a polar wetting agent and saturated in an aqueous polar liquid.

Claim 2: Water can be chosen as the aqueous polar liquid.

Claim 3: The web comprises nonwoven fibers.

Claims 4, 9, 11, 12, 25: The fibers can comprise polypropylene microfibers.

Polypropylene is also a commonly used material. Thermally stable fluorocarbons for oil-resistance can be incorporated.

Claims 14-17: The claimed methods of wetting a fibrous web are commonly found in the art. The references specifically teach methods in claims 14 and 16.

Claim 18: Excess material is squeezed from the web.

Claim 20-24: Claimed methods of drying and dewatering the web are common in the art.

Claim 26: The fibers can comprise polyolefin microfibers.

Claims 27-29, 31, 32: Properties of low and near zero thermal discharge are described. The charge density is expected to be that commonly found for the desired application.

Claims 33-34: Wetting test data is given that corresponds.

Claims 35: It would be obvious to one skilled in the art that the treated web and the properties of the web would be applicable to meeting standards for surgical masks. The reference teaches that the material can be used in a surgical room.

Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Besenhard et al in view of Rousseau et al. Besenhard discloses a method of coating a nonconducting material with finely particulate materials for imparting conductivity. The method comprises first contacting the material with an aqueous solution containing a coagulant (such as a polyelectrolyte or charged polymer), followed by contact with a second solution comprising a polar solvent (alcohols or water) and dispersed charged particles. A dip coating method is used followed by drying. The process is applicable to coating a fibrous web material. Besenhard does not expressly disclose using only water as the second solution. Rousseau teaches that water can be used to provide charge to a web that has been previously treated with compounds containing hydrophilic and hydrophobic functional groups. At the time of the invention, it would have been obvious to one skilled in the art to use water for the second solution in the method of Besenhard for imparting charge to the pretreated nonconductive material. One would be motivated to use water because it is readily abundant, and also because one would wish to test the efficacy of water alone as a baseline or control variable.

Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reeves et al in view of Rousseau et al as applied to claim 1 above, and further in view of Herman. Reeves discloses repellency requirements using a hydrostatic head test, although not the DOP penetration test. Herman teaches a method for testing the integrity of filters, and discloses ANSI filter efficiency requirements using the DOP penetration test. Both tests report penetration based on units of hydrostatic head (mm

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water, for example). It would be obvious to one skilled in the art that the penetration measurements disclosed by Reeves would meet acceptable standards for filters. Using the standard value of 0.05% penetration disclosed by Herman and the hydrostatic head values of Reeves, one would obtain a quality factor (as defined by the applicant) which exceeds the values given in the claims. One would be motivated to design a surgical material that meets standards for filtering media.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reeves et al in view of Rousseau et al as applied to claim 1 and further in view of Lifshutz et al. Lifshutz et al discloses the use of oxazolidinone in a polymer fiber filtration medium. Disclosed values for the DOP test that exceeds the value of the claim when calculated in accordance with the penetration values obtained by Reeves. At the time of the invention, it would have been obvious to one skilled in the art to incorporate oxazolidinone into the fibrous composition to impart greater charge stability of the web.

### ***Allowable Subject Matter***

Claims 10, 13, and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

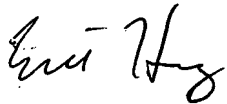
The following is a statement of reasons for the indication of allowable subject matter. Prior art methods for charging a nonconductive web do not teach the steps of annealing the web during chemical treatment as claimed in the invention.

**Conclusion**

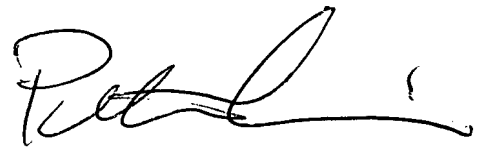
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Hug whose telephone number is 703 308-1980. The examiner can normally be reached on Monday through Friday, 8:00 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 703 308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703 305-7718 for regular communications and 703 305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-0651.



jeh  
March 20, 2001



**PETER CHIN  
PRIMARY EXAMINER**